

NEW RECORDS OF STONEFLIES (PLECOPTERA) FROM PENNSYLVANIA¹

Jane Earle²

ABSTRACT: Fourteen species of Plecoptera, *Allocapnia aurora*, *A. simmonsii*, *Paraleuctra sara*, *Ostrocerca albidipennis*, *O. prolongata*, *Prostoia completa*, *P. similis*, *Bolotoperla rossi*, *Oemopteryx contorta*, *Taenionema atlanticum*, *Taeniopteryx ugola*, *Acroneuria filicis*, *Agnatina flavescens* and *Hansonoperla appalachia* are reported for the first time from Pennsylvania. Two additional species, *Diploperla duplicata* and *Agnatina capitata* are confirmed for the state. *Alloperla neglecta*, *Isogenoides doratus* and *Yugus arinus* are deleted from the state list. With these additions and deletions, the number of species known from Pennsylvania is 113.

Surdick and Kim (1976) published a synopsis of the stoneflies of Pennsylvania, listing 90 species. Stark *et al.* (1986) and Stewart and Stark (1988) listed 95 species as having been recorded from Pennsylvania, adding *Alloperla concolor* Ricker, *A. vostoki* Ricker, *Sweltsa onkos* (Ricker), *Utaperla gaspesiana* Harper and Roy, *Malirekus iroquois* Stark and Szczytko and *Yugus arinus* (Frison); substituting *Agnatina annulipes* (Hagen) for *Agnatina capitata* (Pictet), *Diploperla robusta* Stark and Gaufin for *D. duplicata* (Banks); and deleting *Paragnetina fumosa* (Banks). Other species additions have been *Alloperla chloris* Frison, *A. imbecilla* (Say) and *A. usa* Ricker from Surdick (1985); *Perlesta nitida* Banks from Stark (1989), and *Perlinella drymo* (Newman) from Kondratieff *et al.*, (1987), putting the state total at 100. *Alloperla neglecta* Frison, *Isogenoides doratus* (Frison) and *Yugus arinus* (Frison) have been previously reported in error and should be deleted from the state list.

I have in my collection 14 additional species from Pennsylvania which represent new state records. With these additions, confirmations and deletions, the new state total is 113.

The following is a list of the new species records, counties, streams, dates of collection and the collector. COLLECTORS: Michael D. Bilger (MDB), Jane I. Earle (JIE), Gregory A. Hoover (GAH), Lawrence L. Jackson (LLJ). Identifications were of adult males unless otherwise stated. Listed ranges are from Stark *et al.* (1986).

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² Department of Environmental Resources, Bureau of Mining and Reclamation, P.O. Box 8461, Harrisburg, PA, 17105-8461

Capniidae

Allocapnia aurora Ricker: Adams Co. Carbaugh Run, 17 February 1992 (JIE); Cumberland Co. Mountain Creek, 23 January 1993, (LLJ) and Toms Run, 23 January 1993 (LLJ); York Co. Muddy Creek, 3 February 1993 (MDB).

These records represent a northern range extension for this species, previously known from Maryland south to Alabama.

Allocapnia simmonsii Kondratieff and Voshell: Yellow Breeches Creek, Huntsdale, 8 March 1993 (JIE); Dauphin Co. Swatara Creek, Middletown, 24 March, 1993 (JIE).

This rare winter stonefly has previously been known only from two sites in Montgomery County, Virginia and is considered endangered in Virginia (Kondratieff and Kirchner, 1991).

Leuctridae

Paraleuctra sara (Claassen): Cambria Co. Laurel Run, 10 April 1990 (JIE); Columbia Co. Fishing Creek, 30 April 1977 (JIE); Cumberland Co. Cold Spring Run, 19 April 1993 (JIE); Fayette Co. unnamed tributary to Youghiogheny River, 7 May 1978 (JIE); Huntingdon Co. Standing Stone Creek, 7 April 1992 (LLJ); Jefferson Co. Clover Run, 23 April 1986 (JIE); Lawrence Co. unnamed Tributary to Hell Run, 15 April 1980 (JIE); Luzerne Co. Kitchen Creek, 12 April 1977 (JIE); Perry Co. McCabe Run, 11 April 1993 (JIE); Sullivan Co. West Branch Fishing Creek, 17 April 1977 (LLJ); Union Co. Cherry Run, 11 April 1977 (LLJ).

It is surprising that this spring species, known from Quebec to South Carolina, has not been previously reported. Although having a wide-spread distribution in Pennsylvania, nymphs are rarely collected in benthic samples and are likely part of the hyporheos. In Pennsylvania, adults have most commonly been collected from first through third order cool streams, many of which are affected by acid precipitation.

Nemouridae

Ostrocerca albidipennis (Walker): Dauphin Co. Clark Creek, 10 May 1993 (JIE); Franklin Co. unnamed tributary to Conodoguinet Creek, 16 May 1993 (JIE); Potter Co. Black Stump Hollow, 12 May 1993 (LLJ).

This species has previously been reported from Connecticut, Massachusetts, Maine, New Hampshire, New York, Virginia, Nova Scotia, Ontario and Quebec.

Ostrocerca prolongata (Claassen): Tioga Co. Babb Creek, 20 May 1992 (JIE).

Babb Creek receives acid mine drainage from abandoned deep mines. A pH of 5.2 was recorded at the time of collection. Stark *et al.* (1986) and Young *et al.* (1989) previously listed this species from Quebec, Ontario, Delaware, Maine, New Hampshire, New York, Virginia and West Virginia. These *Ostrocerca* records confirm the presence of all four eastern *Ostrocerca* species in Pennsylvania.

Prostoia completa (Walker): Dauphin Co. Powell Creek, female, 10 May 1993, (JIE) and Susquehanna River, 25 March 1992 (JIE); Lancaster Co. Bowery Run and West Branch Octoraro Creek, 21 March 1992 (LLJ); Potter Co. First Fork Sinnemahoning Creek, 9 May 1992 (LLJ).

This species ranges from Quebec to Minnesota and south to South Carolina.

Prostoia similis (Hagen): Cumberland Co. Doubling Gap Run, 18 April 1993 (JIE); Perry Co. McCabe Run, female, 15 May 1993 (JIE) and Tuscarora Creek, female, 18 April 1993 (JIE).

This species of *Prostoia* has a range similar to that of *P. completa*.

Taeniopterygidae:

Bolotoperla rossi (Frison): Dauphin Co. Powell Creek, 10 May 1993 (JIE).

This species is considered to be rare and has been previously reported from Maine, North Carolina, New Hampshire, Virginia, West Virginia and Quebec.

Oemopteryx contorta (Needham and Claassen): Cumberland Co. Mountain Creek, 28 February 1992 (LLJ) and Toms Run, 8 March 1992 (JIE).

This species has previously been reported from Connecticut, Kentucky, Massachusetts, Maine, New Hampshire, Tennessee, Virginia and West Virginia.

Taenionema atlanticum Ricker and Ross: Luzerne Co. Kitchen Creek, 12 April 1977 (JIE); Perry Co. McCabe Run, (JIE); Potter Co. East Fork Sinnemahoning Creek, 13 May 1992 (LLJ); Union Co. Cherry Run, 11 April 1977 (LLJ); Sullivan Co. West Branch Fishing Creek, 17 April 1977 (JIE).

This species ranges from Quebec to Newfoundland and south to Tennessee.

Taeniopteryx ugola Ricker and Ross: Cambria Co. Roaring Run, 7 April 1992 (JIE); Cumberland Co. Cold Spring Run, 5 February 1993 (LLJ), Mountain Creek, 14 February 1992 (JIE) and Toms Run, 22 February 1992 (JIE).

These records represent a northern range extension. Previous records were from Georgia, Kentucky, Tennessee, Virginia and West Virginia.

Perlidae:

Acroneuria flicis Frison: Dauphin Co. at light, Dauphin, PA, 26 June 1992, female (GAH).

This species was previously reported from Illinois through Maryland, south to Arkansas and South Carolina.

Agnetina capitata (Pictet): Blair Co. South Poplar Run, 28 June 1978 (LLJ); Cumberland Co. Yellow Breeches Creek, 11 July 1992 (JIE); Dauphin Co. Susquehanna River, 18 June 1992, female (JIE).

Surdick and Kim listed *A. capitata* (as *Phasganophora*) as occurring in Pennsylvania. This, however, was prior to the publication of Stark's (1986) revision and may have been a mixture of all three species. Stewart and Stark (1988) listed *A. annulipes* as occurring in Pennsylvania based on specimens studied during Stark's (1986) revision. These records confirm the presence of *A. capitata* in Pennsylvania.

Agnetina flavescens (Walsh): Dauphin Co. Susquehanna River, 12 June 1992 (JIE); Lehigh Co. Ontelaunee Creek, 8 June 1976 (JIE).

These records confirm the presence of all three species of *Agnetina* in Pennsylvania.

Hansonoperla appalachia Nelson: Cambria Co. Unnamed Tributary to Laurel Run, 11 April 1990, nymph (JIE); Tioga Co. Babb Creek, 20 May 1992, nymph (JIE).

Both of these streams are acidic. Babb Creek receives acid mine drainage from abandoned coal mines. The pH was 5.2 at the time of collection. The Laurel Run tributary is in a forested watershed affected by chronic acidity from atmospheric deposition; pH's ranged from 4.8 to 5.5 during 1990. This rare species has previously been reported from Alabama, Kentucky, Massachusetts, South Carolina, Tennessee and West Virginia.

Perlodidae

Diploperla duplicata (Banks): Cumberland Co. Mountain Creek, 4 July 1992 (JIE); Dauphin Co. Clark Creek, 26 June 1992 (GAH).

Surdick and Kim (1976) included *D. duplicata* (Banks) as occurring in Pennsylvania; however, their records may have included both *D. duplicata* and *D. robusta*. Stark and Gaufin's (1975) revision of *Diploperla* may not have been completed prior to the preparation of Surdick and Kim's manuscript. Later publications (Masteller, 1983, Stark *et al.*, 1986, and Stewart and Stark, 1988) listed *D. robusta*, not *D. duplicata* from Pennsylvania. My records confirm *D. duplicata* as part of the Pennsylvania fauna.

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